CLAIMS

1. A photoelectric conversion device comprising:

a photoelectric conversion element;

a first accumulating unit that accumulates an output signal outcoming from the photoelectric conversion element during a first period;

a second accumulating unit that accumulates an output signal outcoming from the photoelectric conversion element during a second period different from the first period;

first and second switch units used for selectively introducing the output signal from the photoelectric conversion element to the first or second accumulating unit; and

an output unit that outputs the output signals from the photoelectric conversion element accumulated in the first and second accumulating units at the same time by inversing the polarity of the first accumulating unit.

2. The photoelectric conversion device according to claim 1,

wherein the output unit includes:

a third switch unit selectively applying a reference voltage to the connection point between the first switch unit and the first accumulating unit;

a fourth switch unit selectively applying a reference

voltage to the first and second accumulating units; and

a fifth switch unit that is connected to the connection point between the second accumulating unit and the second switch unit so as to read out signals from the first and second accumulating units.

3. A photoelectric conversion device comprising:

a photoelectric conversion element;

a first accumulating unit that accumulates an output signal outcoming from the photoelectric conversion element during a first period;

a second accumulating unit that accumulates an output signal outcoming from the photoelectric conversion element during a second period different from the first period;

first and second switch units used for selectively introducing the output signal from the photoelectric conversion element to the first or second accumulating unit;

a third switch unit selectively applying a reference voltage to the connection point between the first switch unit and the first accumulating unit;

a fourth switch unit selectively applying a reference voltage to the first and second accumulating units; and

a fifth switch unit that is connected to the connection point between the second accumulating unit and

the second switch unit so as to read out signals from the first and second accumulating units.

4. A photoelectric conversion device comprising:

a photoelectric conversion element;

a first accumulating unit that accumulates an output signal outcoming from the photoelectric conversion element during a first period;

a second accumulating unit that accumulates an output signal outcoming from the photoelectric conversion element during a second period different from the first period;

first and second switch units used for selectively introducing the output signal from the photoelectric conversion element to the first or second accumulating unit;

a third switch unit selectively applying a reference voltage to the first accumulating unit when reading;

a fourth switch unit selectively applying a reference voltage to the first and second accumulating units when the output signal from the photoelectric conversion element is accumulated; and

a fifth switch unit that outputs output signals from the first and second accumulating units at the same time at the time of reading.

5. A photoelectric conversion device comprising:

a plurality of photoelectric conversion elements, each forming a pixel, arranged in a matrix;

first accumulating units that accumulate output signals outcoming from the photoelectric conversion elements during a first period;

second accumulating units that accumulate output signals outcoming from the photoelectric conversion elements during a second period different from the first period;

first and second switch units used for selectively introducing the output signals from the photoelectric conversion elements to the first or second accumulating units;

third switch units selectively applying a reference voltage to the first accumulating units when reading;

fourth switch units selectively applying a reference voltage to the first and second accumulating units when the signals from the photoelectric conversion elements are accumulated; and

fifth switch units that output signals from the first and second accumulating units at the same time at the time of reading,

wherein noise is removed for each pixel.

6. The photoelectric conversion device according to any one of claims 1 to 5,

wherein each of the switch units is composed of a MOS transistor.

7. The photoelectric conversion device according to any one of claims 1 to 5,

wherein the fourth switch unit includes:

a first MOS transistor selectively applying a reference voltage to the first accumulating unit;

a second MOS transistor selectively applying a reference voltage to the second accumulating unit; and

a third MOS transistor that connects the connection point between the first accumulating unit and the first MOS transistor to the connection point between the second accumulating unit and the second MOS transistor.